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A CAUTION TO THE READER

This HBScF thesis has been through a semi-formal process of review and comment by at least two faculty members. It is made available for loan by the Faculty of Natural Resources Management for the purpose of advancing the practice of professional and scientific forestry.

The reader should be aware that opinions and conclusions expressed in this document are those of the student and do not necessarily reflect the opinions of the thesis supervisor, the faculty, or of Lakehead University.

ABSTRACT

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The vast majority of Ontario's forest is owned by the Province. However, most of the deciduous and Great Lakes- St. Lawrence forest is privately owned. Government has very little control over private land. To encourage good forestry practices on private lands the Managed Forest Tax Incentive Program was created. To be enrolled in the program, landowners must have a minimum of four hectares of eligible forested land and have a Forest Management Plan approved by a registered approver. Participants of the program have eligible lands taxed at 25% of the municipal rate. The program benefits the environment. Studies have shown that the participants are more likely to remove invasive species and plant native species than woodlot owners not enrolled. Landowners benefit by having reduced tax rates and increased knowledge of their property. The major limitation is that most woodlots are owned by farmers as part of a larger property. Their farms are already taxed at the same rate and the MFTIP requires additional work and limits what activities they can do on their land. Reducing the taxation rate below that of the farm tax may increase enrollment. The other issue is that the program is poorly advertised, and many landowners are unaware.

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1.0 INTRODUCTION

The province of Ontario has 71.1 million hectares of forest, of that, 10% is privately owned (Ontario 2012). While this may not seem like a significant amount, most of the privately owned forest is in southern Ontario, which is home to Ontario's most diverse and smallest forest type, the deciduous forest. The government of Ontario does not heavily regulate forestry management on private land as it does on public land (Ontario 2012). The decision on how to manage the land rests with the landowner. Ontario's Managed Forest Tax Incentive Plan (MFTIP) provides the financial incentive to a landowner for creating and following a sustainable forest management plan by taxing the qualifying areas of their property at 25% of the going rate. The purpose of this paper is to look at how Ontario's managed forest tax incentive plan (MFTIP) works, why it's useful, and its benefits to private landowners and the environment.

1.1 LITERATURE REVIEW

1.1.1 FOREST TYPES IN ONTARIO

There are four forest regions in Ontario: the Hudson Bay Lowlands, the Boreal Forest, the Great Lakes-St. Lawrence, and the Deciduous Forest (OMNR 2014). The Hudson Bay Lowlands is the forest that extends to the tree line in the far north. It is sparsely treed, accounting for roughly 11% of the productive forest in the province (OMNR 2014). The largest of the forest types is the Boreal Forest. It accounts for 50%

of Ontario's area (OMNR 2014). The majority of annual harvested timber volume in Ontario comes from this region and is publicly owned.

The Great Lakes-St. Lawrence forest region is the second largest in Ontario, accounting for roughly 20% of Ontario's area and the productive forest (OMNR 2014). A substantial part of the GLSL forest is privately owned (Rotherham 2003). The Deciduous Forest is Ontario's smallest forest account for 3% of the area but less than 1% of the productive forest, however, it is also the most diverse (OMNR 2014). The Deciduous Forest is in the southernmost portion of Canada and has many species found nowhere else in the country (McLachlan and Bazely 2002). Most of the Deciduous Forest has been cleared for urban or agricultural development leaving woodlots scattered throughout the area on areas that cannot support an agricultural operation (OMNR 2014). Almost all of the land in the deciduous forest area is privately owned (McLachlan and Bazely 2002).

Figure 1 below shows the different forest regions in Ontario.

Figure 1. Forest regions in Ontario (Source: Ontario)

Table 1 shows the percentage of forest cover in each region, the Deciduous Forest region has by far the least forest cover as much of the land was cleared for agriculture and urbanization.

Table 1. Percentage of forest cover in each zone (Source: Ontario)

Forest Type	Forest cover (%)
Hudson Bay Lowlands	24.2
Boreal Forest	74
Great Lakes-St. Lawrence	62
Deciduous Forest	10.3

1.1.2 HISTORY OF LAND USE IN ONTARIO

Before European settlement, Ontario's forests were used by First Nations as a source of food and shelter (Elliot 1998). Timber extraction began in the mid to late 1700s to provide wood used in the construction of the British and French navies (Elliot 1998; MacDonald et al. 2020). Much of the forest in Ontario, especially the southern region, were subject to high grading and the best logs were removed (Elliot 1998). By the 1780s deforestation was occurring large scale in the south where the land was being cleared for agriculture (Elliot 1998). The crown gave much of the land to the settlers as an incentive to clear the land for agriculture but reserved the rights to any timber suitable to the navy (Elliot 1998). Forests continued to be cleared as demand for food and urbanization increased.

1.1.3 HISTORICAL CONSERVATION EFFORTS

In the early 1900s, the government of Ontario started assisting private landowners with reforestation efforts (Elliot 1998). Clearing the land to the extent of years previous created unstable environments that were very susceptible to wind erosion (Elliot 1998). The Agreement Forestry Program was created to counteract these effects (Elliot 1998). During this time, the provincial government created nurseries to grow seedlings and provide them to landowners at subsidized prices (Elliot 1998). Planting on private land continued and reached a peak in the 1980s thanks to private land extension services provided by the government (Elliot 1998). Between 1977 and 1987 there were approximately 22 million trees planted annually on private lands (Elliot 1998). It is estimated that roughly 70% of plantations were red pine with other species such as white pine and white spruce on moist sites (Kim 2020). The government eliminated the services in 1994 and the current approach puts more onus on the landowner (Elliot 1998). During this time well over 100,000 ha of plantations were established in Southern Ontario (Davis 2018).

1.1.4 LANDOWNER MOTIVATION FOR FORESTRY INITIATIVES

Landowners have many reasons for taking an interest in their properties. Many forestry initiative programs work together and have similar motivations.

As more marginal farmland is converted back to forests more properties qualify for the MFTIP. It is important to understand the landowner's motivations for planting trees as they often overlap with the desire to have a forest plan on their property. MacDonald et al. (2018) looked into the motivations for taking part in Ontario's 50

Million Tree Program (50 MTP). They found that areas with low agricultural rent values tended to show an increase in forest cover. A survey asking for landowner motivations was filled out by 254 of 2289 precipitants of the 50 MTP. They represented 8.8% of the area planted, meaning the respondents were more likely to own smaller properties than the average. "The most common objective was to enhance wildlife habitat (57.5%), followed by adding native forest cover (54.5%), protecting the local environment (46.1%), providing shade (40.7%), and mitigating climate change (35.9%) while generating income and providing a legacy to descendants were less common as objectives (12.5% and 28.1%, respectively)" (MacDonald et al. 2018). Plantations are not as biodiverse as a natural forest stand initially but conifer plantations are used as a way to provide shelter for mid and shade tolerant species such as ash, maple, and oak to regenerated under protection (Parker et al. 2008). Conifer plantations also provided habitat for multiple bird species of concern (Milne and Bennet 2007). Future income was the least common motivator for participants, but there was a mid to strong negative correlation between the value of agricultural land and participation. This suggests that the environmental benefits are second to the opportunity cost of the landowner (MacDonald et al. 2018).

A study by Boakye-Danquah and Reed (2019) focuses on how the Eastern Ontario Model Forest aids non-industrial private forest owners in forest certification programs. One of the main issues facing forest owners in eastern Ontario is that there is a lack of resources. There is a lack of education, access to qualified professional forestry advice, and harvesting and milling opportunities. The Eastern Ontario Model Forest fills these gaps and provides an intermediate in the certification of sustainable

forest products that would be difficult for small property owners to achieve on their own. The participants in the program invest money into their woodlot and services provided by EOMF despite no direct financial benefits, landowners expect long-term economic and environmental benefits from becoming certified.

Scientists have been studying the socio-psychological reasons for environmentalism behaviour since the 1960s (Drescher et al. 2017; Stapp et al. 1969). Drescher et al. (2017) found that a pro-environmental worldview and formal education increase a person's likelihood of participating in a government-sponsored conservation program. Contrary to what was expected, political views did not affect participation, and traditionalism was negatively related to it (Drescher 2017).

1.1.5 ECONOMIC VALUE OF PRIVATE WOODLOTS

Kim (2020) investigated the economic value of private woodlots in southern Ontario. They found that there is only 10% participation in the MFTIP program. The economic value of the woodlots in Ontario would increase with good forestry practices. The provincial government supported plantations for private landowners under the Woodlands Improvement Act during the 1970s and 80s. These plantations would now be increased in value with thinning and allows for the initial goal of increasing shade-tolerant hardwoods in sandy soils with the conifers to protect them from the elements. Many owners do not know the value of their property and when selling the value of the woodlot is not considered which can lead to intense harvesting just before selling (Kim 2020).

The deciduous forests of Southern Ontario are estimated to have a value of $1,089 million and that this could be increased by $91 million by converting diameter-

limit cutting to good forestry practices (Kim 2020). The value of private plantations is $170 million, it was determined a 10% increase to thinning in red pine plantations has the potential to raise the value by $30 million (Kim 2020).

1.1.6 COMPARING TAX INCENTIVE PROGRAMS

Kilgore et al. (2007) evaluated the relative effectiveness of different tax, cost-share, and other types of financial incentive programs. They "sought to (1) identify the perspectives of the administrators of financial assistance programs, (2) identify the perspectives of the recipients (i.e., forest landowners) of financial assistance programs, (3) evaluate the compatibility between sustainable forestry and the framework of public and private financial incentive programs directed toward family forest owners, and (4) recommend needed changes to existing financial incentive programs." Property tax incentives were found to be only somewhat successful in encouraging sustainable forest management but less so in aiding owners to meet their forest ownership objectives. State financial programs, often programs funded by state tax revenues from forestry operations, offered above average overall for sustainability and owner objectives. Industry and state association programs and land trust and NGO programs had mixed results for sustainability and objectives. One common issue was that many landowners are unfamiliar with the programs offered to them.

In Canada, each province has its own protocol for taxing privately owned forested land. Most provinces do not have tax incentive programs for managed woodlots (Rotherham 2017). In provinces such as Alberta, Saskatchewan, Manitoba, and Prince Edward Island, the classification of land allows for lower tax rates regardless of management status. In British Columbia, Quebec, New Brunswick, Nova Scotia and

Newfoundland and Labrador tax rates are based on use and/or management of the forest land (Rotherham 2017).

METHODS

An online literary search was conducted to find information on Ontario's Managed Forest Tax Incentive Program. Papers outlining the benefits to landowners and the environment were gathered and compiled to paint a picture of the effectiveness of the program.

2.0 HOW MFTIPS WORK

2.1 LAND REQUIREMENTS

To qualify for the MFTIP, the property must be a single property with one roll number owned by a Canadian citizen, corporation, partnership or trust, or conservation authority. The forest must cover a minimum of four hectares (9.88 acres) and must have a minimum number of trees per hectare based on diameter (table 2) (OMNRF 2012).

Table 2. To be eligible, the existing forest must satisfy the minimum stems per hectare based on tree size. (Source: OMNRF 2012)

Tree size	Stems per hectare
Any size	1,000
DBH greater than 5 cm	750
DBH greater than 12 cm	500
DBH greater than 20 cm	250

A property may still be eligible if it has fewer trees per hectare than seen in table 2 if it is a natural open area (forest openings, abandoned farm fields) and accounts for no more than 10% of the total eligible areas. Natural areas that cannot support trees through normal forest management activities, such as swamps and areas with very shallow soil, can be included in less than 25% of the total area. Properties licenced under the Aggregate Resources Act are not eligible. Residential and landscaped areas are not eligible for the tax reduction with a minimum of one acre being deducted for residences or a group of buildings. If an outbuilding is used specifically for forestry purposes, there is no area deducted. Once an FMP is approved, it is good for 10 years (OMNRF 2012).

2.2 LANDOWNER REQUIREMENTS

While the FMP is good for 10 years, the landowner must meet obligations to stay qualified. The property must be managed as set out in the management plan and good records must be kept. At the halfway point, a five-year progress report is sent from the

MNRF to be completed by the landowner. Once the ten years are up, a new plan must be made and approved by a Managed Forest Plan Approver (OMNRF 2012).

Good management activities under the MFTIP include tree planting of native species, recreational activities such as hunting, wildlife management (habitat or by monitoring), and protecting sensitive areas. Activities not permitted under the MFTIP include high grading, pasturing livestock, the removal of soil from the forest, and inactivity that results in the degradation of forest health (OMNRF 2012).

The requirements will vary based on the original plan as properties are different. Different forest types, ages, and landowner goals will require different strategies to reach objectives. For example, a landowner that is interested in deer hunting on their property may choose to increase the amount of conifer for winter deer habitat (Voigt et al. 1997). MFTIPs can be adjusted during the 10-year period but some must be approved by a Managed Forest Plan Approver, such as an increase or decrease in size, and will require an updated property map and inventory (OMNRF 2012). If there is a change to objectives or planned activities, it does not need to be approved but what has changed and the reasons for the change must be documented in the plan and the ten-year summary must be updated (OMNRF 2012).

2.3 MAKING A PLAN

When preparing a Managed Forest Plan the plan is good for 10 years but the plan has a long-term horizon of 20 plus years. A clear goal with descriptions of activities that will be carried out over the next 10 years is required. The MNRF's planning

framework is accessible in A Guide to Stewardship Planning for Natural areas. The actual plan is broken up into sections and can be seen in the appendix.

To complete the form, the history of the property and knowledge of the flora and fauna species present is required. A map showing an overview of the property in relation to adjacent areas and a detailed map breaking the forest area up into compartments is to be included. Landowners must rank their objectives and how important they are on a scale of one to five. Objectives include environmental protection, forest products, investment, recreation, wildlife, and nature appreciation.

While the plan can be written by anyone it has to be approved by a Managed Forest Plan Approver (OMNRF 2012). An example of a completed documents required can be found in the appendix.

3.0 BENEFITS

3.1 LANDOWNER BENEFITS

There are several benefits to the landowner for entering the Managed Forest Tax Incentive Program, the most obvious being a 75% tax reduction on eligible areas. The value of savings is dependent on property valuation.

Making a Forest Management Plan (FMP) provides an opportunity for landowners to see what is on their property. It increases their knowledge of flora and fauna species and can help to identify sensitive areas and species. Understanding the value of their woodlot is another advantage. Inventories can quantify how valuable the wood is and

the FMP can allow for income to be made through sustainable harvesting. Private land accounts for 6% of Canada's forested area but 10% of the national harvest (NRCAN 2020). Sarah Serhan (an email, September 24, 2020) of the MNRF informed that Ontario has approximately 20,000 participants in the MFTIP. Just under 4,000 participants undertake harvesting on a commercial scale and roughly 7,500 harvest for personal use. Woodlot associations, such as the Eastern Ontario Model Forest, can help woodlot owners get certified with the Forest Stewardship Council (FSC) once they have an approved FMP for their harvesting activities (EOMF 2011).

For example, management plans can help to increase value and future security in maple syrup stands. Proper forest management plans can be tailored to encourage the regeneration and health of maple trees (*Acer spp.*). Ensuring growth and stocking of desirable trees through thinning and or planting can provide longevity leading to greater income potential (Clark and McLeman 2011). Thinning the sugar bush can provide opportunities for firewood and timber sale. In 2000, a 3000-tap sugar bush was marked for thinning, including removing 8% of the taps (Chapeskie et al. 2006). The landowner received $5900 for the sale of the wood after all expenses and the logger was paid. Based on the predicted loss of sap yield through harvesting the owner does not see any net loss until the 9th year of production. This does not factor in the increased growth rate or improvements to stands health as a result of harvesting (Chapeskie et al. 2006).

3.2 ENVIRONMENTAL BENEFITS

As the climate continues to warm the value of trees becomes more evident. The carbon sequestered in trees has global benefits in helping to reduce greenhouse gasses (Montagnini and Nair 2004). On the local scale, woodlots are an important part of

ecosystems. Trees help protect sensitive areas such as streams and rivers reducing erosion (Cunningham et al. 2015). They also provide habitat for many species. The deciduous forest is Ontario's most diverse forest type (OMNR 2014). Southwestern Ontario is home to many species at risk including breeding populations of the Acadian Flycatcher, Cerulean Warbler, Louisiana Waterthrush, and Prothonotary Warbler, deemed high priority forest birds (Birds Canada 2019). The Great Lakes St. Lawrence forest is home to a number of reptiles at risk such as the Eastern Ratsnake and several of Canada's turtle species (ESA 2007). Woodland Caribou need large, continuous stretches for forest found in the Boreal and Hudson Bay Lowlands (ESA 2007).

Woodlots that have a mix of native species provide the highest level of biodiversity while faster growing non-native species can provide increased carbon sequestration (Cunningham et al. 2015). Tree planting is encouraged under the MFTIP and can be partially funded by government programs such as the 50 Million Tree Program. To date the program has planted over 31 million trees in Ontario (Forests Ontario 2020). Landowners must have the space for at least 500 trees as part of an eligible project such as afforestation, wind break, riparian, and restoration planting. The program plants native and naturalized species including various pine, spruce, maple, and oak species as well as black walnut, tamarack, and white cedar (MacDonald 2018). Increasing the forest cover and connectivity of woodlots in Southern Ontario will allow more movement and increased gene flow (Cunningham et al. 2015). Increasing gene flow will allow species to adapt to changes in the environment. Landscapes that are well connected have better foraging opportunities for wildlife and provide wide scale

dispersal rates increasing gene pools and reducing the potential of inbreeding (St. Louis et al. 2014).

Under the MFTIP the landowner is required to be active in the management of their woodlot. This often includes the removal and monitoring of invasive species. Invasive species are considered one of the greatest threats to biodiversity and Southern Ontario is a major entry point for them in Canada (Drescher et al. 2019). A number of invasive insects, plants, and fungi, such as buckthorn, emerald ash borer and Dutch elm disease are affecting Ontario woodlots. Throughout the forest regions of Ontario there are 121 different alien plant species that are considered invasive (Ontario 2017). In Southern Ontario, emerald ash borer has caused a decline in canopy cover as large areas of ash forest become infested and die (Duan et al. 2017). A FMP can look to mitigate these losses by planning for removal and replanting of appropriate species. Plans will use best management practice to remove common forest vegetation invasive such as garlic mustard, buckthorn, and dog strangling vine.

The two major incentive programs in Ontario are the Conservation Lands Tax Incentive Program (CLTIP) and the MFTIP. Drescher et al. (2019) found that people who participate in the MFTIP program are 2.5 times more likely to remove invasive species and 4.3 times more likely to plant native tree species, while participants in the CLTIP were no more likely than landowners in neither program. It is suggested that this is because of differences in the programs (Drescher et al. 2019). The CLTIP does not require a management plan and favours passive management. The MFTIP requires landowner action and enforces landowner environmental awareness and a sense of responsibility (Drescher et al. 2019; Srivastava et al. 2020).

4.0 CONCLUSION

4.1 LIMITATIONS

While the Managed Forest Tax Incentive Program has many benefits to the environment and the landowner participation is low. According to Kim (2020), there is less than a 10% participation rate among the 170,000 private woodlot owners in Ontario. This accounts for approximately 12% in terms of land area. Figure 2 shows participation in the MFTIP in Southern Ontario by county.

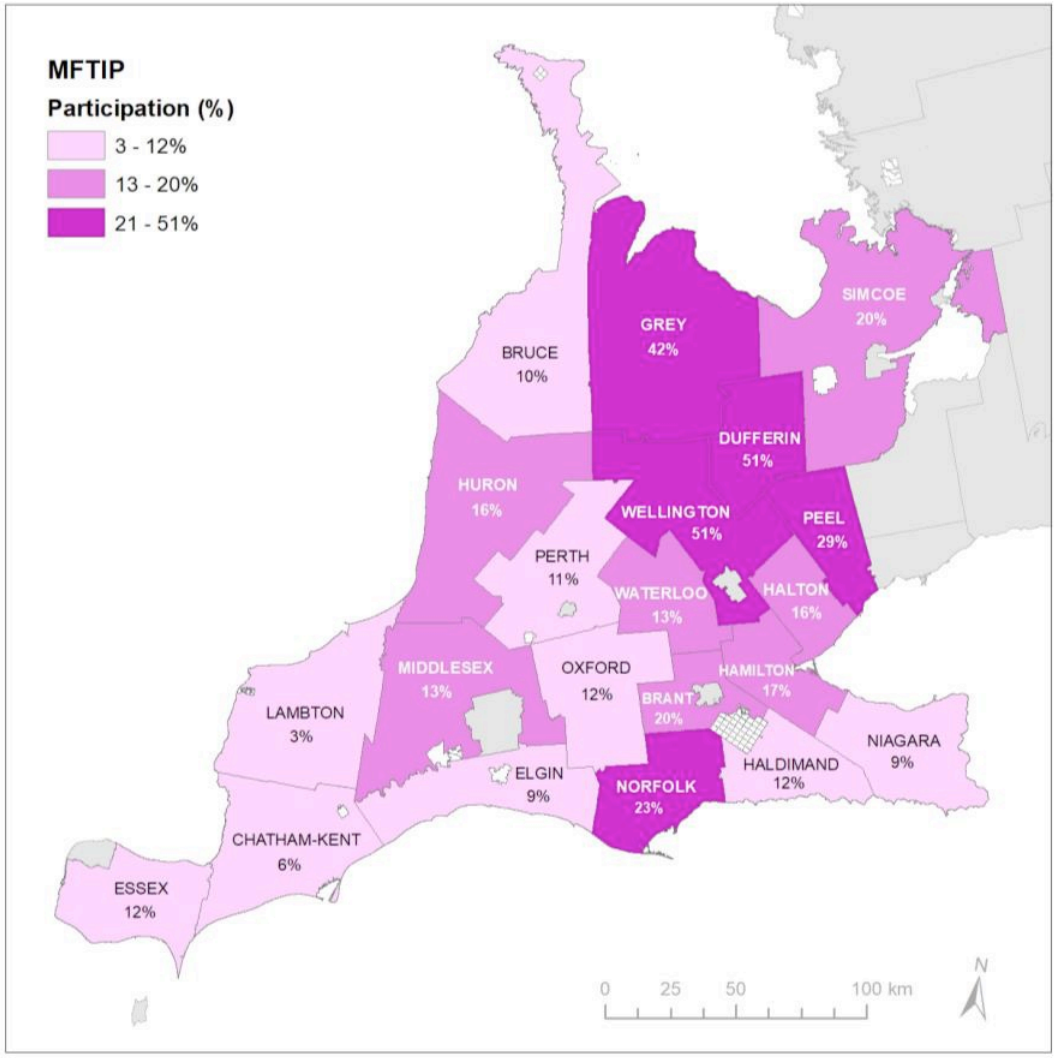

Figure 2. MFTIP participation as a percent of the eligible area by county in Southern Ontario. (source: Hymen Kim 2020).

One of the main reasons landowners do not sign up for the MFTIP is because they already qualify for a tax reduction through the Farm Property Tax Class Rate Program (Clark and McLeman 2011). Many Privately owned woodlots are a small subsection of agricultural land. While the woodlots may be eligible based on size, farms making over $7,000 are eligible for the same 75% reduction for their entire land property minus a residence and one acre of the surrounding area (OMFRA 2021; OFA 2021; Clark and McLeman 2011; Kim 2020). This means there is little incentive for these owners to

make an FMP or join the MFTIP because it is additional work, limits what they are able to do on their property, such as pasture livestock in forest or remove trees to increase field area, and, has no financial benefit (OMNRF 2012).

Another issue with the MFTIP is that it is poorly advertised, and many landowners are unaware of the program (Kim 2020). Woodlot associations such as the Ontario Woodlot Association and the Eastern Ontario Model Forest promote the program and connect landowners to programs, but they do not actively recruit people to join (Ontario Woodlot Association n.d.).

4.2 RECOMMENDATIONS

The MFTIP is an underutilized conservation incentive program. To increase enrollment the most, a change to the property taxation rate in Ontario would need to occur. A large portion of woodlot owners in Ontario are farmers that are already being taxed at the same reduced rate (Mathewson 1994; Kim 2020). There needs to be a benefit for the landowner if they are going to put in the additional work and time to create and follow an FMP. If wooded areas with a FMP were exempt from property taxes, there would be greater interest in the program.

Advertising the program could increase awareness. Local government and conservation authorities could actively target qualifying landowners or connect interested owners with complementing programs such as the 50 Million Tree Program.

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APPENDIX

APPENDIX I

SAMPLE STEWARDSHIP PLAN FOR MFTIP

Stewardship plan

This stewardship plan is for the 20-year period from *Jan. 1, 2002* to *Dec. 31, 2021*
with activities described for the 10-year period from *Jan. 1, 2002* to *Dec. 31, 2011*

Section 1: Property owner information

1.1 Registered property owner

Name *Jim & Jane Doe*

Address *123 Property Lane RR #5*

Rural Town, Ontario

Postal code *K0T 0Z2*

Telephone numbers

Residence (*613*) *555-1234*

Business ( )

Fax ( )

E-mail *landowners@nowmail.com*

1.2 Plan author information

Name

Address

Postal code

Telephone numbers

Residence ( )

Business ( )

Fax ( )

E-mail

Section 2: Property location information

2.1 Property location

Roll number (19 digits)	Property description (municipality, lot, concession)	Area (x acres or _ ha)
0234 000 008 56780 0000	*Dunlop County, Hilly Twp. Lot 20, Conc. 11*	*75*

2.2 Federal, provincial and local policies and regulations

Section 3: Property history

3.1 Past activities *We purchased the property in 1957 from Mr. and Mrs. Smith and we had the property surveyed. Up until that time, the Smiths had been grazing cattle in the open fields. In 1960 we planted a portion of these fields with red pine under WA agreement 21-125 (F-3). The remainder of the open area is still used for cattle.*

We cut around ten cords of firewood each year from the mixed hardwood area to heat our home. Some years we cut more and sell it. We started tapping the hard maple trees in the northwest corner of the property in 1970. We produce enough syrup for our own use and for friends.

There is a two acre wetland that extends into the neighbouring property. Until now, our cattle have drunk water from the wetland. Our neighbour also waters his cattle from the wetland. We have removed beaver dams a couple of times when the water levels started flooding the neighbour's land.

We have been developing trails through the property. The trails are used for walking, skiing, and snowmobiling. The trails join the neighbour's trails and go to the abandoned rail line, giving us access to other trails in the county. This is a good arrangement because it gives our family, and the neighbours access to more trails.

3.2 The surrounding landscape *The wetland on our property extends to the south onto other properties. It recharges the wells in the immediate area. In years when neighbours had low water levels in their wells, those of us near the wetland were fine. The wetland drains across our property through a seasonal stream. We enjoy watching the different wildlife in the wetland areas. Usually, two to four pairs of mallards nest in our woodlot adjacent to the pond.*

Most of the area surrounding our property was once farmland. It was difficult to farm and is now regenerating to mixed hardwoods. Some of the better land has been kept in hay and pasture. Some fields are still bordered by trees. Two lots to the west of our property, the forest changes to mostly coniferous trees. This is where the deer that spend summers on our property spend the winter.

Section 5: Landowner objectives

5.1 Your general objectives

For the next 20 years, indicate how important the objective is to you. Rank only those which apply to you.

Management objective	How important is the objective to you? Less important ⟶ More important				
Environmental protection	1	2	3	4	(5)
Forest products	1	2	(3)	4	5
Investment	(1)	2	3	4	5
Recreation	1	2	3	(4)	5
Wildlife	1	2	3	(4)	5
Nature appreciation	1	2	(3)	4	5
	1	2	3	4	5

5.2 Details about your property level objectives

In your own words, explain why each of the objectives is important.

Environmental protection *We feel that it is very important that we protect the natural and environment on our property. If we keep it healthy, our children and their grandchildren will also be able to enjoy it.*

Forest products *We would like to improve the quality of the hardwood forests. The trees we remove are used to heat our home, reducing our overall living costs. We would like to continue producing maple syrup.*

Investment *Although we expect the property to increase in value over time, it is really not one of our objectives.*

Recreation *All of our family enjoy the outdoors. Our children spend a lot of time cross-country skiing and snowmobiling.*

Wildlife *We would like to improve the wildlife habitat that is present on the property. This will increase our hunting opportunities.*

Nature appreciation *We enjoy the variety of plants and wildlife. The duck families that develop over the summer in the wetland are fun to watch.*

Other

5.3 How will you achieve your objectives?

- The Ontario Land Trust Alliance has information on conservation easements and estate planning options - The family is willing to help with the work on the property - We have most of the equipment that is needed to carry out our planned activities (chainsaws, maple syrup equipment, and tractor). - We will require some information about protecting the wetland and keeping the cattle out. - Our local stewardship council has workshops on this type of thing and the conservation authority has an expert on staff. - There are plenty of reference books at the library and book store. - In a couple of years we will to hire a forestry consultant to take a look at the maple syrup operation to make sure we are on the right track.

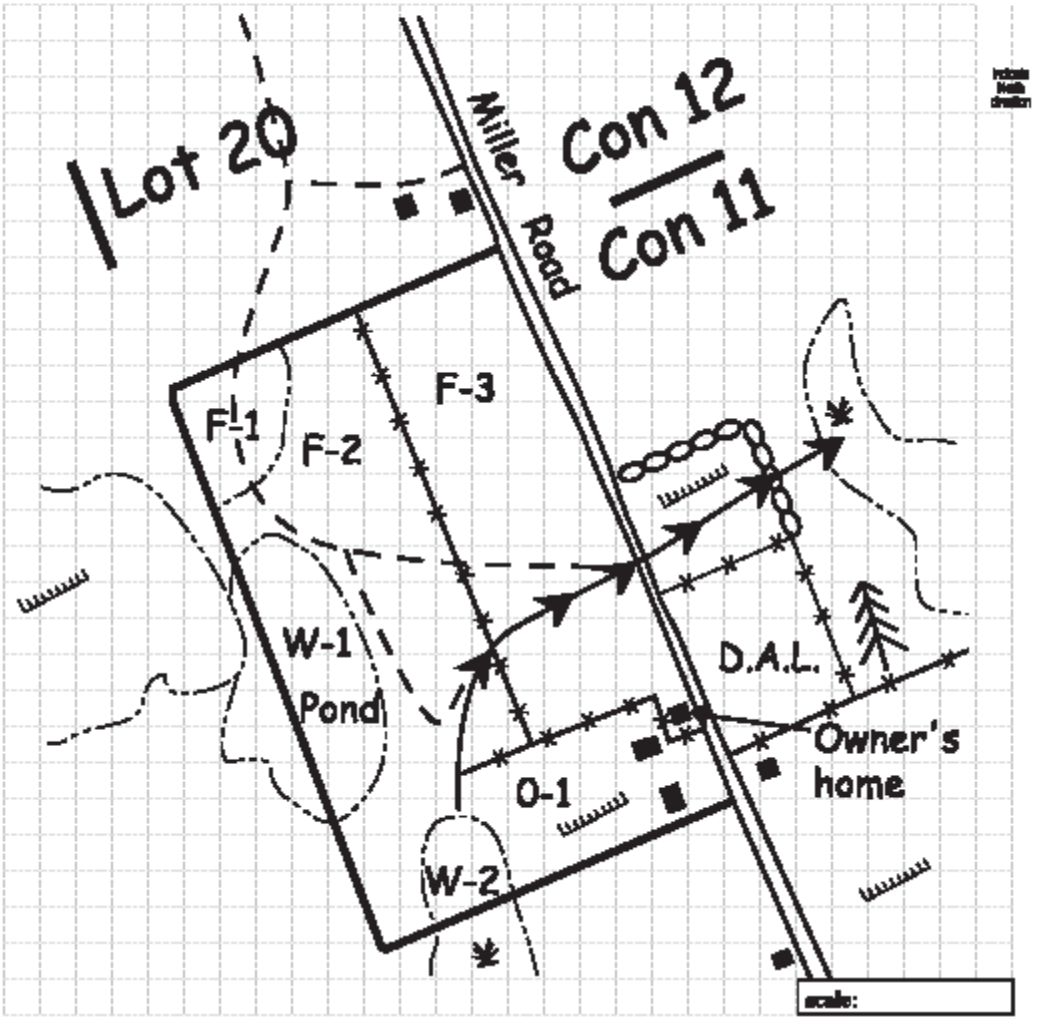
Section 4: Property map and the surrounding area

This map should provide an overview of your property and show its relationship to adjacent areas.

fencerow	quarry	forested area
building	P plantation	treed flood/swamp
access road/trail	marsh	dam
utility line	tower	orchard
grass/abandoned field	bridge	D.A.L. developed agricultural land
watercourse	hydro line	shallow & rocky
windbreak	railway	debris pile

Section 6: Detailed property map

Divide the property into compartments and indicate them on the map.



Section 7: Getting to know your upland areas

(Fill out a separate form for each upland compartment)

7.1 Compartment number/name *F-2 Mixed hardwood bush* **Area** *35* **acres** ___ **ha**

7.2 Compartment characteristics

Soil type
- ___ light (generally sand)
- x medium (generally loam)
- ___ heavy (generally clay)

Soil depth
- ___ very shallow (less than 15 cm)
- ___ shallow (between 15 and 30 cm)
- x moderate to deep (greater than 30 cm)

Stony ___ yes ___ x no

Topography ___ flat ___ x gently rolling ___ steep

Drainage
- x well drained
- ___ moderate
- ___ poor

Accessibility ___ x year-round ___ seasonal

Additional information ___

7.3 Compartment History *This has been a mixed bush as long as anyone can remember. We have been harvesting poor-quality trees for firewood from this area since we bought the property. Not much cutting was done before that time. There is a well-developed trail system.*

7.4 Inventory If the compartment is dominated by trees, complete the Forested Compartment Description (below). If the compartment has few trees, complete the Open Area description (below).

Forested compartment description

Much woody debris on forest floor	x yes	___ no
Good diversity of understory plants	x yes	___ no
Signs of grazing or other disturbance	___ yes	x no
Good regeneration of seedlings/saplings	x yes	___ no
Trees generally younger	___ yes	x no
Trees generally older growth	x yes	___ no
Trees generally the same age	___ yes	___ no
Trees of all sizes and ages	___ yes	___ no

Tree species found	Percent
Species *red maple*	*40* %
Species *hard maple*	*20* %
Species *white ash*	*20* %
Species *basswood*	*10* %
Species *white pine*	*10* %
Species ___	___ %
	100%

Estimated height of trees *65* ft ___ m
Average diameter at breast height *18* in ___ cm
Estimated age of majority of trees *100* yrs

Open area description

Agricultural areas
- ___ pasture
- ___ cropland

Other areas
- ___ old field
- ___ exposed rock
- ___ hydro or pipeline corridor
- ___ shallow limestone alvar
- ___ native grass prairie
- ___ sparsely treed savannah

Other features

Such as
- ___ small open areas
- ___ small rock knobs/ barrens
- x fencerows
- ___ small wet areas
- ___ beaver floods
- ___ pond, stream
- ___ lake

Other *Fencerow along south edge; mainly Manitoba maple + wild apple. Patches of wild leek and trillium (both red and white)*

General cover type determination:

___ coniferous forest	x deciduous forest	___ mixed forest
___ coniferous plantation	___ deciduous plantation	___ mixed plantation

Upland areas: continued...

7.5 Wildlife If you are interested in the wildlife in this compartment, fill in the table below. If you are managing this compartment specifically for wildlife, or if the compartment contains unique habitat or species, you may want to use the form in Appendix 2 - Getting to Know the Wildlife, which allows for a more detailed inventory.

List the species that you have observed or have seen signs of (e.g., white-tailed deer - tracks often seen along the edge of creek). Make sure that you note any vulnerable, threatened, or endangered species.

Species	Observation
1. *white-tailed deer*	*-in fall, along old fenceroiw; they eat the apples from the apple trees in the fencerow*
2. *red-tailed hawk*	*-nest in large basswood tree; have used same nest for last two years*
3. *squirrels and chipmunks*	*-numerous*
4. *raccoons*	*-have nested in cavity of large white pine in the past; no signs of activity this year*
5. *variety of songbirds-variety is much greater in the spring during maple syrup tapping time*	
6. *grouse*	*-feed on the ironwood seed*
7.	
8.	
9.	
10.	

7.6 Compartment Objectives

Long-term objectives (What do you want this compartment to be like in 20 years?)

Keep a variety of species growing in the woodlot. We only remove the really poor-quality trees. In the long term we would like to do a commercial harvest. We will consult with a professional forester to see if a cut is possible. Leave some of the large, declining trees to provide homes for wildlife. Retain the large white pine - they are important to the wildlife.

Short-term activities (What activities, if any, do you have planned in this compartment over the next 10 years that will help reach your long-term objectives?)

Maintain the access trail for removal of fuelwood and recreational use. Cut using crop tree selection method (described in Extension Note). We will cut around 10 cords a year.

Conservation land designation

Eligible for Conservation Land Tax Incentive Program? ___ yes **x** no ___ don't know

Type of conservation land

___ Provincially significant wetland
___ Habitat of endangered species
___ Community conservation lands
___ Provincially significant area of natural and scientific interest (ANSI)
___ Escarpment natural area in the Niagara Escarpment Plan

Other information _____

Section 7: Getting to know your wetland areas

(Fill out a separate form for each wetland compartment)

7.1 Compartment number/name W-2 Marsh **Area** 4 **acres** ____ **ha**

7.2 Compartment characteristics

Soil type x muck; __ peat; __ silt; __ marl; __ sand

Main source of water __ spring; __ tile drain; __ snow melt; x creek; __ runoff; __ natural pond / lake; __ groundwater seepage; __ other ____

Accessibility __ year-round __ seasonal

7.3 Compartment history

x flooded year-round; __ flooded spring only; __ dries mid-summer

__ man-made impoundment; __ beaver impoundment; __ water at or near ground level

__ Wetland has been evaluated by OMNR

Average yearly water level ____

Additional information ____

7.4 Inventory If trees and shrubs cover more than 25% of the compartment area, complete the left side of the form (below). If less than 25% of the compartment area is covered by trees or shrubs, complete the right side of the form (below).

Trees or shrubs cover more than 25%

Most trees are dead	__ yes	__ no
Mostly shrubs	__ yes	__ no
Good diversity of understory plants	__ yes	__ no
Signs of grazing or other disturbance	__ yes	__ no
Trees generally younger	__ yes	__ no
Trees generally older growth	__ yes	__ no
Trees generally the same age	__ yes	__ no
Trees of all sizes and ages	__ yes	__ no

Tree species found	Percent
Species ____	____ %
Species ____	____ %
Species ____	____ %
Species ____	____ %
Species ____	____ %
Species ____	____ %
	100%

Estimated height of trees __ ft __ m

Average diameter at breast height __ in __ cm

Estimated age of majority of trees __ yrs

Trees or shrubs cover less than 25%

__ no open water __ some open water

Vegetation is

x emergent __ submergent __ floating

Composed of

x mostly cattails, rushes, reeds, grasses, and sedges

__ mostly sedges, mosses

__ covered in sphagnum moss

Other vegetation ____

Other features

x stream

__ pond

__ other (describe)

Additional information ____

General cover type determination:

x marsh; __ fen; __ bog; __ dead tree swamp; __ thicket swamp; __ coniferous swamp; __ deciduous swamp; __ mixed swamp

Getting to know your wetland areas: continued...

7.5 Wildlife If you are interested in the wildlife in this compartment, fill in the table below. If you are managing this compartment specifically for wildlife, or if the compartment contains unique habitat or species, you may want to use the form in Appendix 2 - Getting to Know the Wildlife, which allows for a more detailed inventory.

List the species that you have observed or have seen signs of (e.g., white-tailed deer - tracks often seen along the edge of creek).

Species	Observation
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

7.6 Compartment Objectives

Long-Term Objectives (What do you want this compartment to be like in 20 years?)

Short-Term Activities (What activities, if any, do you have planned in this compartment over the next 10 years that will help reach your long-term objectives?)

Conservation Land Designation

Eligible for Conservation Land Tax Incentive Program? ___yes ___no ___don't know

Type of conservation land

___Provincially significant wetland ___Provincially significant area of natural and scientific interest (ANSI)
___Habitat of endangered species ___Escarpment natural area in the Niagara Escarpment Plan
___Community conservation lands

Other Information _____

Section 8: Ten year activity summary

Compartment	Objective	Activity	Quantity	Year scheduled
F-2	woodlot management	fuelwood harvest	10 cords	annual
F-2	maintain access	remove fallen branches etc	all trails	as needed
W-1	keep water clean	fence wetland,	250 m fence	2005
		install hose pumps	2 hose pumps	2005
		call Stewardship		
		Co-ordinator to find out		
		about funding programs		

Section 9: Report of activities

Compartment	Activity	Proposed Quantity	Quantity Completed	Comments
F-2	fuelwood cutting	10 cords	7 cords	this is hard work
W-1	fence wetland; put in pumps	250 m	250 m	got funding for 50% of
		2 pumps	1 pump	project from a river quality
				improvement program. Found
				out only needed 1 pump for the
				number of cattle we have

Getting to know the wildlife

7.5 Description of wildlife for X Compartment number: W-2

_____ Entire property

Wildlife observations

Wildlife species	Season	Activity	Comments
Mammals			
beaver	year-round	live	they sometimes dam the creek
white-tailed deer	year-round	drink, browse	have a well travelled trail along edge; eat dogwood in the fall and winter
coyote	year-round	drink	have seen tracks along edge
mink	not sure	feeding	seen swimming among the lily pads, feeding along edge
Birds			
mallards	spring, summer, fall	nest and raise young	last year 2 pairs raised their families here
great blue heron, often	spring, summer, fall	feeding	comes to marsh to catch fish - seen along edge
other waterfowl	spring, fall	stop over	often a variety of ducks stop to rest here when they migrate
Amphibians/reptiles			
leopard frogs	spring, summer	breeding	we hear them every spring
bull frogs	spring, summer	breeding	there seem to be more than in previous years
painted turtle	spring	breeding	have seen them sunning on logs at edge
Fish			
minnows	spring, summer	feeding	have seen them in the shallow water along edges of the marsh
Insects			
dragonflies	summer	eating bugs	they are great to have around, they keep the mosquito numbers down
Rare Plants			